

# Patient's preferences on the use of Telemedicine during the Coronavirus disease 2019 (COVID-19) Pandemic. ONCOTELEMED study

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## Research Article

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# Abstract

## BACKGROUND

Since the beginning of the COVID-19 pandemic, the use of telehealth for cancer care was rapidly implemented without previous experience. Afterwards, few published studies have assessed patient's perception with the use of telemedicine during this period. The main objective of ONCOTELEMD study was to evaluate the opinion of patients attended via telemedicine during the first quarter of 2020 in the Medical Oncology Service of Hospital Parc Taulí, Sabadell.

## METHODS

646 patients were visited via telephone between March 13 and April 30 2020. A 12-question survey was presented to them between February 4 and April 19 2021. Statistical analysis was carried out using Chi-square test.

## RESULTS

487 patients responded. Median age was 68 years [27–90]. 90% of patients were satisfied with the telephone visit and 60% would agree to switch some in-person to virtual visits in the future. In general, patients agreed to be informed via telehealth of radiological/analytical results but not of new oral or endovenous treatments. 75% of patients had a medium or low-null knowledge of new technologies. However, statistical significant differences were found according to age groups. 60% of patients younger than 50 years would prefer to have different technological tools to contact their oncologist whereas 58% of patients older than 70 years would prefer only telephone or video-calls.

## CONCLUSIONS

In global, patients surveyed were satisfied with the virtual visit and believe that telehealth could have a role following COVID-19 pandemic. Nevertheless, it is necessary to individualize its use according to patient's preferences and conditions.

## Introduction

The coronavirus disease 2019 (COVID-19), caused by severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2), emerged in Wuhan in late 2019 and became a worldwide pandemic by March 2020 (1).

Since the beginning of the virus extent, cancer patients were widely accepted as a more at-risk population due to their underlying disease and greater immunosuppression (2). Consequently, the symptoms caused

by COVID-19 are more severe, and mortality is also higher when compared to the community, reaching a 30% rate according to different series (3–5).

To reduce the risk of infection, oncologists were required to readapt cancer care models and evaluate the risks and benefits of outpatient visits in health care centres. Therefore, medical associations such as the European Society of Medical Oncology (ESMO) and the American Society of Clinical Oncology (ASCO) recommended the use of telemedicine when feasible (6, 7).

For this reason, during the first quarter of 2020, telehealth was implemented in 76.2% of European centres and its use increased by 150% compared with 2019 (8, 9)

Telemedicine is defined by the World Health Organization as the *delivery of health care services using information and communication technologies, for the exchange of valid information for the diagnosis, treatment, and prevention of disease and injuries, research and evaluation, and the continuing education of health care providers.* (10).

The interest in increasing the use of telemedicine for medical assistance already existed before the actual global crisis. Previously published reports reinforced telehealth as a valid method of medical consultation since it offers a high level of satisfaction to consumers and reduces the budget for health systems, without affecting quality services (11).

In the oncology field, telehealth was primarily explored in Australia and the USA to guarantee health care services to rural and remote populations (12). Afterwards, its application has been limited, and most studies address surveillance, pain management, genetic counselling, and physiological support (13).

Due to the COVID-19 pandemic, the use of telemedicine for cancer care was urgently instigated without any previous robust evidence or supporting guidelines. This rapid implementation revealed numerous critical issues that must be addressed in the post-COVID era. In this sense, emerging works focus on creating strategies to identify those patients who will benefit most from telemedicine and to study treatment outcomes and patient safety under virtual care (14).

Three specific tele-oncology guidelines have been recently published in order to guide clinicians and oncology care systems. The use of telemedicine is recommended for routine follow-up/survivorship visits, to inform about laboratory and scan results, to evaluate oral drug compliance, and to manage long-term treatments (6, 13, 15).

The evidence currently available highlights the importance of considering individual conditions and patient/professional preferences in order to ensure an appropriate use of telehealth. Many recently published studies address the oncology provider's opinion with the use of telemedicine due to the COVID – 19 pandemic, but there is little literature regarding the patient's opinion (16–24).

During the first semester of 2020, some in-person appointments of patients attending the medical oncology service of Hospital Parc Taulí in Sabadell were switched to telemedicine according to

physicians' criteria, patient preferences, and guideline recommendations.

Parallely, we designed the ONCOLOMED study with the main objective of evaluating the preferences and satisfaction of patients with the use of telemedicine during this period.

## Methods

ONCOTELEMED is a unicenter and prospective study that was approved by The Research Ethics Committee of Parc Taulí Hospital on October 27th, 2020; with the code number 2020/661.

## Eligibility Criteria and Patient Population

Patients included were visited via telephone by a medical oncologist of Hospital Parc Taulí between March 13th and April 30th 2020 and responded to a 12-question survey one year later; between February 4th and April 19th 2021.

### Patient survey

Questions addressed satisfaction level and future interest in telemedicine and the level of knowledge of new technologies. Patients had to give oral consent to participate. The survey was provided once and was not anonymous. Patients could respond via telephone or during an in-person visit, depending on whether or not they had a face-to-face appointment during the survey period.

### Statistical analysis

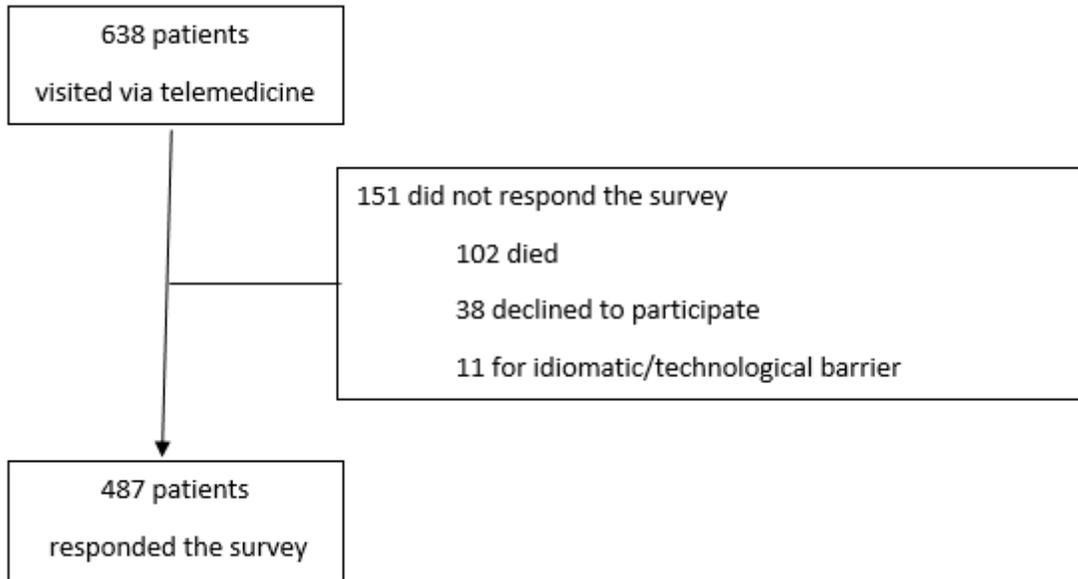
The characteristics of all patients were recorded in a database created *ad-hoc*: including demographics (age, sex), clinical characteristics (ECOG, type and stage of tumour), treatment characteristics (type of treatment and route of administration), and type of visit (on-treatment or follow-up).

Statistical analysis was carried out using the SPSS Package v25. The characteristics of the patients recruited and survey responses were summarized using descriptive analysis. The Chi-square test was used for comparisons. Statistical significance was considered when  $p < 0.05$ .

## Results

A total of 638 patients were visited via telephone between March 13th and April 30th, 2020. Of these, 487 patients (76.3%) responded to the survey; 57% via telephone and 43% during an in-person visit. The remaining 151 patients did not respond due to death/loss to follow-up (16%), declined to participate (6%), or because of an idiomatic/technological barrier (1.7%) (Table 1).

Table 1- Patients flowchart



The median age was 68 years old. Forty-three percent of participants were over 70 years of age. The majority of patients were on a surveillance program (65.7%) and had colorectal (43.1%) or breast cancer (26.5%). Only 34.7% were actively undergoing treatment, which was, in most cases, hormonal therapy. Other respondent demographics are described in Table 2.

Table 1  
Patients  
flowchart

Table 2  
Respondent's demographics.

	<b>Respondents</b>
	<b>N = 487 (%)</b>
<b>Age</b>	68 [27–90]
<b>Gender:</b>	
Male	218 (44.8)
Female	269 (55.2)
<b>ECOG:</b>	
0	384 (78.9)
1	99 (20.3)
≥2	4 (0.8)
<b>Cancer type:</b>	
Colorectal	210 (43.1)
GI non colorectal	41 (8.4)
Thoracic	29 (6.0)
Breast	129 (26.5)
Others (GIST, melanoma, TNE)	78 (16.0)
<b>Clinical stage</b>	
I	99 (20.3)
II	124 (25.5)
III	172 (35.3)
IV	92 (18.9)
<b>Type of appointment</b>	
Follow-up	320 (65.7)
Treatment	167 (34.3)

	<b>Respondents</b>
	<b>N = 487 (%)</b>
<b>Oncological treatment</b>	
No treatment	320 (65.7)
Adjuvant	103 (21.1)
Neoadjuvant	13 (2.7)
Palliative	51 (10.5)
<b>Route of administration</b>	
No treatment	320 (65.7)
Endovenous	61 (12.5)
Oral	96 (19.8)
Others (SC, IM)	10 (2.1)
<b>Drug type</b>	
No treatment	320 (65.7)
Targeted therapy	25 (5.1)
Hormonotherapy (+/- CDKinh)	80 (16.4)
Immunotherapy	24 (4.9)
Chemotherapy (+/- IO, targeted therapy)	38 (7.8)

## Patients' attitude towards telemedicine

A total of 421 patients responded to the survey by themselves.

91.8% of patients were very or normally comforted by the virtual visit and 81.1% felt they could resolve their doubts properly. No statistical differences were found for the telephone call satisfaction grade according to age group ( $p = 0.392$ ) or type of appointment ( $p = 0.054$ ). Differences were found regarding the type of tumour; patients with breast cancer being less satisfied than others ( $p = 0.0001$ ) (Table 3).

Table 3  
The oncologists' call comforted you regarding your active disease and its follow-up?

	<b>Very, n (%)</b>	<b>Normal, n (%)</b>	<b>A little bit, n (%)</b>	<b>Not at all, n (%)</b>	<b>DK/NO*, n (%)</b>	<b>N</b>	<b>p</b>
<b>All patients</b>	257 (52.8)	190 (39.0)	21 (4.3)	6 (1.2)	13 (2.7)	487	
<b>Age group</b>							
< 50 years	27 (50.9)	23 (43.4)	0 (0)	2 (3.8)	1 (1.9)	53	0.392
50–70 years	116 (51.8)	86 (38.4)	14 (6.3)	2 (0.9)	6 (2.7)	224	
> 70 years	114 (54.3)	81 (38.6)	7 (3.3)	2 (1)	6 (2.9)	210	
<b>Type of tumour</b>							
Colorectal	126 (60)	67 (31.9)	11 (5.2)	1 (0.5)	5 (2.4)	203	0.001
GI non colorectal	22 (53.7)	16 (39)	0 (0)	2 (4.9)	1 (2.4)	41	
Breast	52 (40.3)	67 (51.9)	6 (4.7)	3 (2.3)	1 (0.8)	129	
Thoracic	17 (58.6)	8 (27.6)	4 (13.8)	0 (0)	0 (0)	29	
Others	40 (51.3)	32 (41)	0 (0)	0(0)	6 (7.7)	78	
<b>Type of appointment</b>							
Follow-up	184 (57.5)	111 (34.7)	13 (4.1)	3 (0.9)	9 (2.8)	320	0.054
Treatment	73 (43.7)	79 (47.3)	8 (4.8)	3 (1.8)	4 (2.4)	167	
*DK/NO: Do not know/no opinion							

When asked for future perspectives, 65.5% of patients would agree to switch some in-person visits to virtual, and 63.2% consider that telemedicine could have a role following the COVID19 pandemic. Significant differences were found in future attitudes towards telehealth among different tumour-type groups; patients with breast and GI non colorectal cancer being more reluctant to change. These differences were not detected considering the type of appointment or age (Table 4)

Table 4  
Future preferences

Topic	Yes, n(%)	No, n(%)	DK/NO*, n(%)	N	p
<b>In the future, after the COVID19 public health crisis, would you accept to switch some in-person visits to virtual?</b>					
<b>All patients</b>	319 (65.5)	148 (30.4)	20 (4.1)	487	
<b>Age group</b>					
< 50 years	38 (71.7)	12 (22.6)	3 (5.7)	53	0.728
50–70 years	143 (63.8)	72 (32.1)	9 (4.0)	224	
> 70 years	138 (65.7)	64 (30.5)	8 (3.8)	210	
<b>Type of tumour</b>					
Colorectal	147(70)	48 (22.9)	8 (3.8)	203	0.018
GI non colorectal	23 (56.1)	17 (41.5)	1 (2.4)	41	
Breast	71 (55)	54 (41.9)	4 (3.1)	129	
Thoracic	19 (65.5)	8 (27.6)	2 (6.9)	29	
Others	52 (66.7)	21 (26.9)	5 (6.4)	78	
<b>Type of appointment</b>					
Follow-up	216 (67.5)	91 (28.4)	13 (4.1)	320	0.418
Treatment	103 (61.7)	57 (34.1)	7 (4.2)	167	
<b>Do you think telemedicine may have a role in the future?</b>					
<b>All patients</b>	308 (62.0)	160 (32.9)	19 (3.9)	487	
<b>Age group</b>					
< 50 years	41 (77.4)	12 (22.6)	0 (0)	53	0.070
50–70 years	137 (61.2)	74 (33)	13 (5.8)	224	
> 70 years	130 (61.9)	74 (35.2)	6 (2.9)	210	

\*DK/NO: Do not know/no opinion

Topic	Yes, n(%)	No, n(%)	DK/NO*, n(%)	N	p
<b>Type of tumour</b>					
Colorectal	147(70)	61 (29)	2 (1)	203	0.000
GI non colorectal	22 (53.7)	17 (41.5)	2 (4.9)	41	
Breast	69 (53.5)	56 (43.4)	4 (3.1)	129	
Thoracic	20 (69)	5 (17.2)	4 (13.8)	29	
Others	50 (64.1)	21 (26.9)	7 (9)	78	
<b>Type of appointment</b>					
Follow-up	210 (65.6)	100 (31.3)	10 (3.1)	320	0.220
Treatment	98 (58.7)	60 (35.9)	9 (5.4)	167	
*DK/NO: Do not know/no opinion					

Regarding the information given during the visit, most patients would accept being virtually informed of scan or laboratory test results (62% and 84%, respectively). However, only 30% of patients would like to discuss the indication of endovenous treatments via telemedicine, and 52% would accept it if treatments were oral. These preferences were similar throughout all groups (type of tumour, appointment, or age) with no statistically significant differences (Fig. 1).

## Patients' knowledge of new technologies

Patients were asked about their abilities with new technologies and the tools they would prefer to use to contact health professionals. The majority responded that their knowledge was medium or low-null (34.9% and 40.5%, respectively), although there was great variability throughout the responses when adjusting for age ( $p = 0.0001$ ). (Fig. 1).

These differences were also found regarding the chosen means of communication with caregivers. Of the patients over 70 years old, 47.6% would generally prefer telephone calls, 51.4% of patients between 50 and 70 years would use telephone calls or video calls, while 73.6% of patients under 50 years of age would use different tools (including mobile applications, e-mail, text message, or chat) ( $p = 0.0001$ ) (Fig. 2).

## Discussion

Once the COVID-19 pandemic was established in March 2020, the use of telemedicine for cancer care increased drastically without any preceding solid experience (25). Only a few previously published studies had compared the use of virtual consults with in-person visits, without detecting any differences in patient satisfaction, confidence, or anxiety levels (26).

In the context of the current health crisis; published works have shown a high grade of patient satisfaction with the use of telemedicine (16, 18, 20, 22, 23). In accordance, the great majority of patients in our centre felt reassured with the virtual visit and displayed a positive attitude towards the use of telehealth after the COVID19 pandemic.

Overall, satisfaction grade was not associated with age or type of appointment, but it did associate with type of tumour; patients with breast cancer being less predisposed to change. Current reviews regarding the efficacy of telemedicine are predominantly based on breast cancer populations (20, 22, 27, 28). In general, almost all of these conclude that breast cancer patients find virtual care useful, although they would not agree to replace all in-person visits completely. One main reason for this preference could be the barrier of the physical examination, a basic tool for surveillance and early detection of breast cancer recurrence that is not mandatory in other tumour types. Therefore, in order to increase the presence of telehealth in the follow-up of breast cancer survivors, it would be essential to empower patients to play an active role in their own care.

Although no differences were found regarding the satisfaction level between treatment or surveillance visits, most patients expressed their unwillingness to receive information about oral or endovenous treatments via telemedicine, while they did agree to be informed of laboratory or scan results.

The use of telemedicine for surveillance is supported by a substantial amount of evidence, especially for the management of physical symptoms and psychosocial effects (13, 26). Besides, less evidence exists on the use of telehealth for patients who are undergoing treatment. A possible explanation could be the more complex scenario, given the difficulties to evaluate performance status, the high acuity of complications, and complex toxicities due to the treatments used.

It is also important to highlight the matter of telemedicine and aging. Older adults may have more difficulties switching to telemedicine due to their lack of abilities with new technologies (29, 30). Lam *et al.*, 2020, published a cross-sectional study including patients aged 65 or older. Thirty eight percent of participants were not prepared for video visits and 20% for telephone visits (31). In our study, there is a large difference regarding knowledge of new technologies according to age. Although video calls and other tools (such as phone applications, chats...) ensure a better use of telehealth than telephone calls; patients in our series are aged (70% being over 65 years old) and, consequently, 76% have a low-null knowledge of new technologies and 65.3% would only use telephone calls to contact their doctors.

Despite this, we found no differences in satisfaction with the virtual visit and future preferences with telemedicine according to age. For this reason, we have to consider that age should not limit the use of telehealth in the future, although it is clearly necessary to adapt the tools used to each patient in order to ensure optimal care.

In our opinion, and according to current evidence, guideline recommendations, and our patients' preferences; telemedicine should only be considered today under these scenarios: as a substitute for

some surveillance visits, to inform of laboratory or scan results, and for long-term treatments; all independent of age or tumour type.

Our study has some limitations. On the one hand, it is single-centre study, surveys were not anonymous, and patients could respond in two different ways; via telephone call or during an in-person visit. We also had a small number of patients with ongoing treatment (which is not representative of our daily activity,) and some tumour types were not represented (gynaecological and genitourinary).

## Conclusions

Telemedicine has some clear benefits compared with in-person visits, like the improvement in punctuality, need for transportation, or waiting time. However, patient preferences and individual situations must be considered when planning to implement telemedicine for cancer care in the future. Moreover, it is necessary to encourage health systems to invest in teaching both professionals and patients to use telemedicine correctly in order to ensure good healthcare. Finally, the matter of clinical outcomes and safety with the use of telehealth should be investigated in the near future.

## Abbreviations

DK/NO

Do not know/no opinion

## Declarations

**DATA AVAILABILITY:** Data available on request.

**FUNDING:** The authors declare that no funds, grants, or other support were received during the preparation of this manuscript.

## AUTHORS CONTRIBUTIONS

- Conception of the work: Paula Ribera, Carles Pericay.
- Design of the work: Paula Ribera, Carles Pericay.
- Acquisition of data for the work: Paula Ribera, Carles Pericay, Laia Vilà, Ismael Macias, Luis Fernandez, Carla Climent, Julia Giner, Sandra Soriano.
- Analysis of data for the work: Paula Ribera
- Interpretation of data for the work: Paula Ribera, Carles Pericay.
- Drafting of the work: Paula Ribera.
- Critical revision of the work for important intellectual content: Enrique Gallardo, Luis Fernandez, Carles Pericay, Miquel Àngel Seguí.

## COMPETING INTERESTS

- *Paula Ribera* has received speaker honoraria from Merck and travel and meeting support from Lilly, Sanofi, Merck and Amgen.
- *Sandra Soriano* has received speaker honoraria from Kyowa Kirin, MSD and support for attending meetings and travel from Rovi, Roche and Pierre-Fabre.
- *Carla Climent* has received support for attending meetings and/or travel from Roche, Rovi, Esteve and Lilly.
- *Laia Vilà* has received speaker and consultant honoraria from Pfizer, Astrazeneca and Sanofi and support for attending meetings and travel from MSD and Roche.
- *Ismael Macias* has received support for attending meetings and/or travel from Merck, Roche, Amgen, Lilly, Sanofi and Ipsen and advisory board honoraria from Amgen and Sanofi.
- *Luis Fernandez* has received speaker and consultant honoraria from Novartis, Pfizer, BMS, Pierre-Fabre, MSD and Roche. He also has received support for attending meetings and/or travel from Pfizer and Roche.
- *Júlia Giner* has received speaker honoraria from Astrazeneca and BMS.
- *Enrique Gallardo* has received speaker and consultant honoraria from Sanofi, Janssen, Astellas, Bayer, Ipsen, Pfizer, Roche, Novartis, Eisai, EUSA Pharma, BMS, AstraZeneca, Merck, Rovi, Daiichi Sankyo, Techdow, Leo Pharma, Menarini, MSD. He also received support for attending meetings and/or travel from Astellas, Janssen, Sanofi, Bayer, Ipsen, Ferrer, Pfizer, Roche, GSK and BMS.
- *Miquel Angel Seguí* has received speaker honoraria from Eisai, Pfizer, Novartis, Lilly, Roche, MSD, Amgen, Daiichi-Sanyko. He also has received honoraria for advisory board from Pfizer, Novartis, Lilly, MSD, Roche, Astrazeneca, Amgen, Eisai, Seattle Genetics and Daiichi Sanyko and research funding from Pfizer, Novartis, Lilly and Roche.
- *Carles Pericay* has received honoraria for advisory board from Merck, Amgen, Roche, Sanofi, Servier, Lilly, BMS, Novartis and Ipsen.

**ETHICS APPROVAL:** This study was performed in line with the principles of the Declaration of Helsinki. Approval was granted by the Ethics Committee of Parc Taulí Hospital on October 27<sup>th</sup>, 2020; with the code number 2020/661.

**CONSENT TO PARTICIPATE:** Informed consent was obtained from all individual participants included in the study.

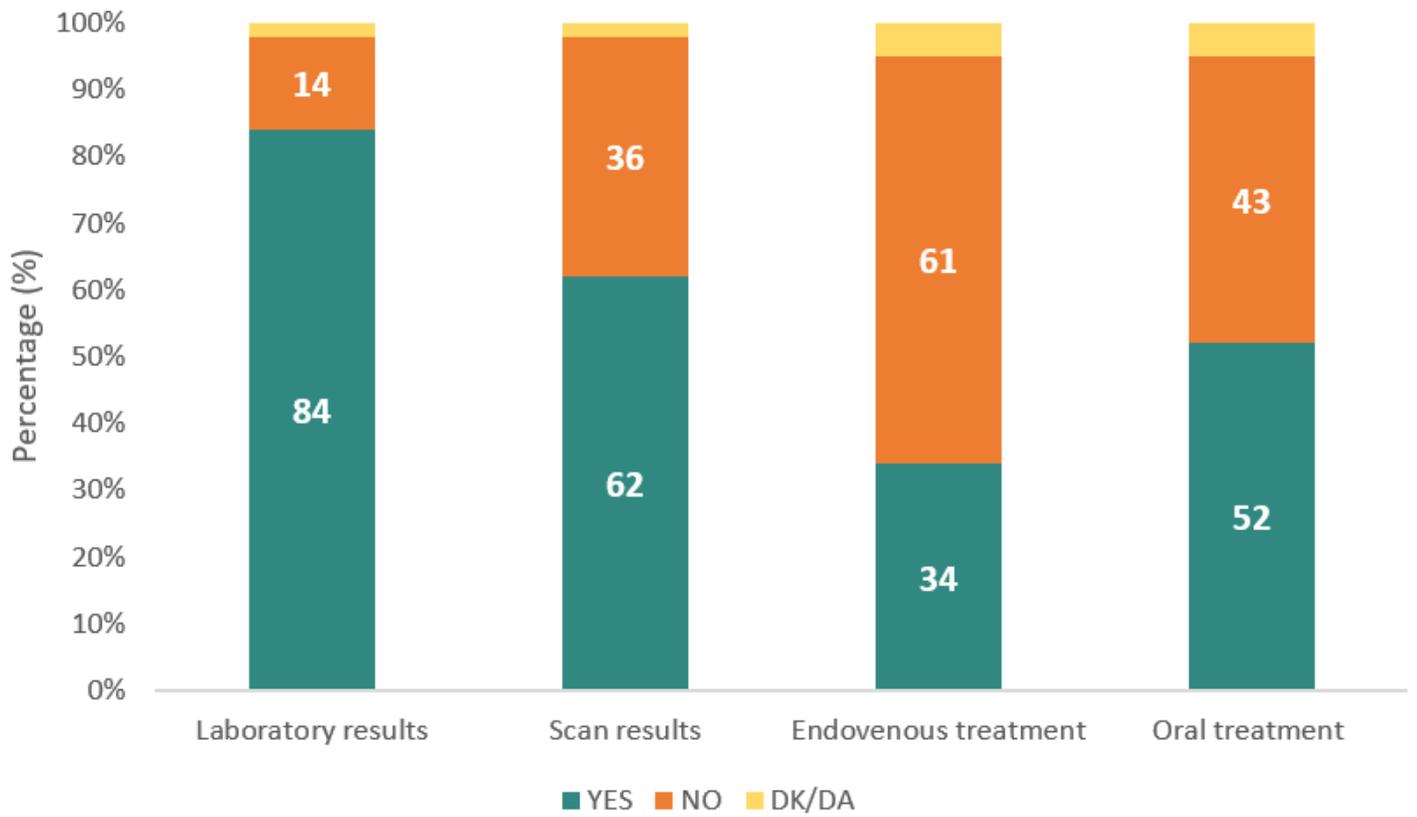
## References

1. World Health Organization WHO. [Available from: <https://covid19.who.int/>].
2. Al-Shamsi HO, Alhazzani W, Alhurairi A *et al*. A Practical Approach to the Management of Cancer Patients During the Novel Coronavirus Disease 2019 (COVID-19) Pandemic: An International

- Collaborative Group. *The Oncologist*. 2020;25(6):e936-e45.
3. Yu J, Ouyang W, Chua MLK, Xie C. SARS-CoV-2 Transmission in Patients With Cancer at a Tertiary Care Hospital in Wuhan, China. *JAMA Oncology*. 2020;6(7):1108–1110.
  4. Liang W, Guan W, Chen R *et al*. Cancer patients in SARS-CoV-2 infection: a nationwide analysis in China. *The Lancet Oncology*. 2020;21(3):335–337.
  5. Desai A, Gupta R, Advani S *et al*. Mortality in hospitalized patients with cancer and coronavirus disease 2019: A systematic review and meta-analysis of cohort studies. *Cancer*. 2021;127(9):1459–68.
  6. Curigliano G, Banerjee S, Cervantes A *et al*. Managing cancer patients during the COVID-19 pandemic: an ESMO multidisciplinary expert consensus. *Ann Oncol*. 2020;31(10):1320–35.
  7. ASCO Special Report: A guide to cancer care delivery during the COVID-19 Pandemic. [Available from: <https://www.asco.org/sites/new-www.asco.org/files/content-files/2020-ASCO-Guide-Cancer-COVID19.pdf>].
  8. Koonin LM, Hoots B, Tsang CA *et al*. Trends in the Use of Telehealth During the Emergence of the COVID-19 Pandemic – United States, January–March 2020. *MMWR Morbidity and Mortality Weekly Report*. 2020;69(43):1595–9.
  9. Onesti CE, Rugo HS, Generali D *et al*. Oncological care organisation during COVID-19 outbreak. *ESMO Open*. 2020;5(4):e000853.
  10. Telemedicine. Opportunities and developments in Member States. [Available from: [https://www.who.int/goe/publications/goe\\_telemedicine\\_2010.pdf](https://www.who.int/goe/publications/goe_telemedicine_2010.pdf)].
  11. Mike J Crawford, Deborah Rutter, Catherine Manley *et al*. Systemic review of involving patients in the planning and development of health care. *BMJ* 2002;325:1263
  12. Sirintrapun SJ, Lopez AM. Telemedicine in Cancer Care. *American Society of Clinical Oncology Educational Book*. 2018(38):540–5.
  13. Zon RT, Kennedy EB, Adelson K *et al*. Telehealth in Oncology: ASCO Standards and Practice Recommendations. *JCO Oncology Practice*. 2021;17(9):546–64.
  14. Pareek P, Vishnoi JR, Kombathula SH *et al*. Teleoncology: The Youngest Pillar of Oncology. *JCO Global Oncology*. 2020(6):1455–60.
  15. Clinical practical guidelines for teleoncology [Available from: <https://wiki.cancer.org.au/australia/COSA:Teleoncology>]
  16. McCabe HM, Smrke A, Cowie F *et al*. What Matters to Us: Impact of Telemedicine During the Pandemic in the Care of Patients With Sarcoma Across Scotland. *JCO Global Oncology*. 2021(7):1067–73.
  17. Manz C, Baxter NN, duPont NC *et al*. Patterns of telehealth utilization during the COVID-19 pandemic and preferences for post-pandemic telehealth use: A national survey of oncology clinicians. *Journal of Clinical Oncology*. 2021;39(suppl 15):1580.

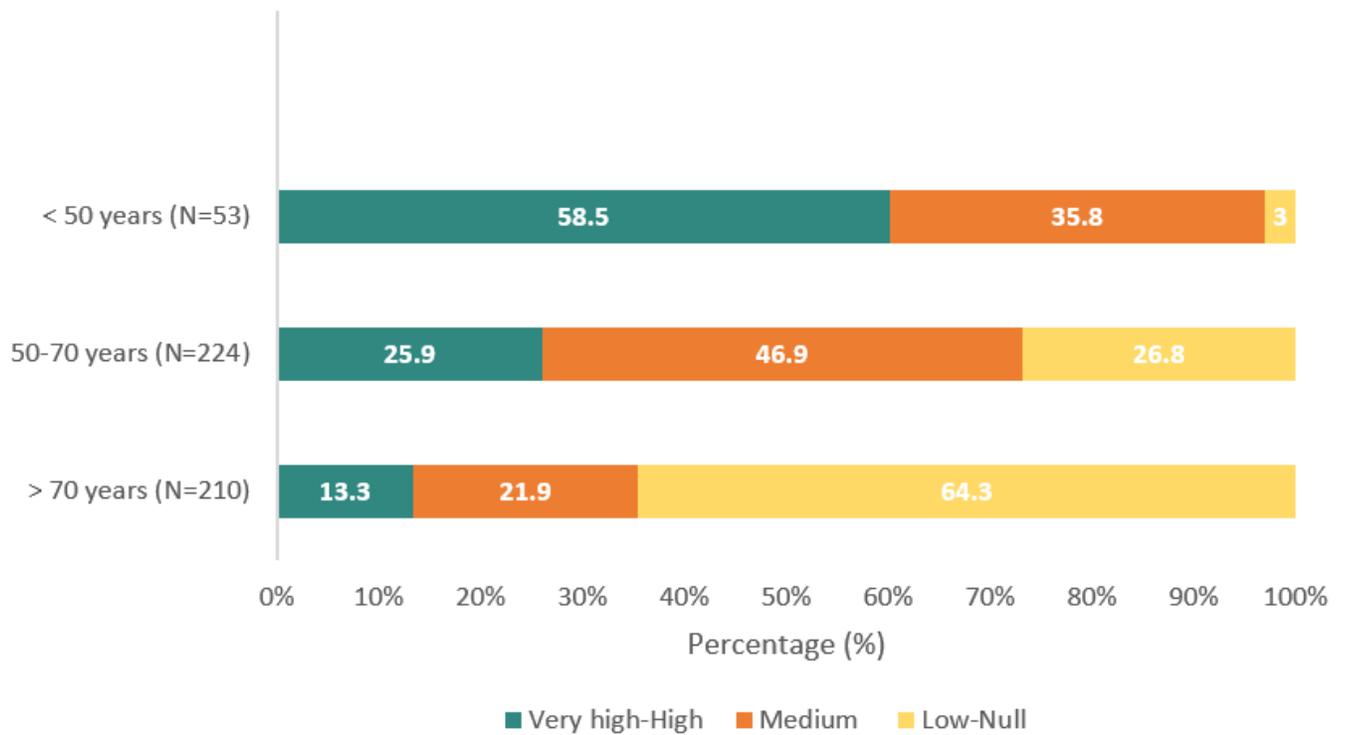
18. Wehrle CJ, Lee SW, Devarakonda AK, Arora TK. Patient and Physician Attitudes Toward Telemedicine in Cancer Clinics Following the COVID-19 Pandemic. *JCO Clin Cancer Inform.* 2021;5:394–400.
19. Tevaarwerk AJ, Chandereng T, Osterman T *et al.* Oncologist Perspectives on Telemedicine for Patients With Cancer: A National Comprehensive Cancer Network Survey. *JCO Oncol Pract.* 2021;17(9):e1318-e26.
20. Johnson BA, Lindgren BR, Blaes AH *et al.* The New Normal? Patient Satisfaction and Usability of Telemedicine in Breast Cancer Care. *Annals of Surgical Oncology.* 2021;28(10):5668–76.
21. Smrke A, Younger E, Wilson R *et al.* Telemedicine During the COVID-19 Pandemic: Impact on Care for Rare Cancers. *JCO Global Oncology.* 2020(6):1046–51.
22. Zimmerman BS, Seidman D, Berger N *et al.* Patient Perception of Telehealth Services for Breast and Gynecologic Oncology Care during the COVID-19 Pandemic: A Single Center Survey-based Study. *Journal of Breast Cancer.* 2020;23(5):542.
23. Grant M, Hockings H, Lapuente M *et al.* Learning from Crisis: a Multicentre Study of Oncology Telemedicine Clinics Introduced During COVID-19. *Journal of Cancer Education.* 2021. Jul 2:1–9
24. Loree JM, Dau H, Rebić N *et al.* Virtual Oncology Appointments during the Initial Wave of the COVID-19 Pandemic: An International Survey of Patient Perspectives. *Current Oncology.* 2021;28(1):671–7.
25. Knudsen KE, Willman C, Winn R. Optimizing the Use of Telemedicine in Oncology Care: Postpandemic Opportunities. *Clin Cancer Res.* 2021;27(4):933–6.
26. Chan RJ, Crichton M, Crawford-Williams F *et al.* The efficacy, challenges, and facilitators of telemedicine in post-treatment cancer survivorship care: an overview of systematic reviews. *Annals of Oncology.* 2021;32(12):1552–70.
27. Bizot A, Karimi M, Rassy E *et al.* Multicenter evaluation of breast cancer patients' satisfaction and experience with oncology telemedicine visits during the COVID-19 pandemic. *British Journal of Cancer.* 125, 1486–1493 (2021).
28. Yildiz F, Oksuzoglu B. Teleoncology or telemedicine for oncology patients during the COVID-19 pandemic: the new normal for breast cancer survivors? *Future Oncol.* 2020;16(28):2191–5.
29. Donaghy E, Atherton H, Hammersley V *et al.* Acceptability, benefits, and challenges of video consulting: a qualitative study in primary care. *British Journal of General Practice.* 2019;69(686):e586-e94.
30. Cimperman M, Brenčič MM, Trkman P, Stanonik MDL. Older Adults' Perceptions of Home Telehealth Services. *Telemedicine and e-Health.* 2013;19(10):786–90.
31. Lam K, Lu AD, Shi Y, Covinsky KE. Assessing Telemedicine Unreadiness Among Older Adults in the United States During the COVID-19 Pandemic. *JAMA Internal Medicine.* 2020;180(10):1389.

## Figures



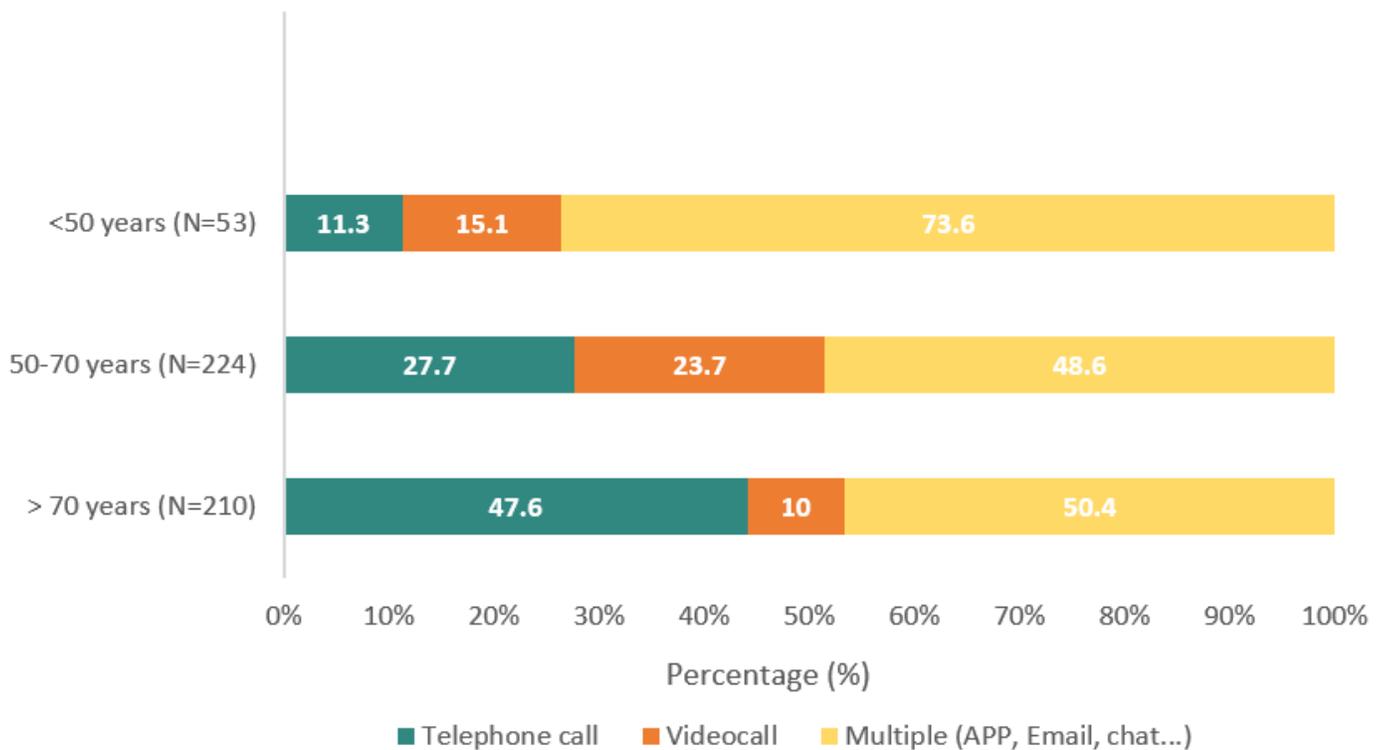
**Figure 1**

Would you agree to be informed via telemedicine of...?



**Figure 2**

What is your knowledge of new technologies?



### Figure 3

Which tool would you like to use to contact your oncologist?

## Supplementary Files

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